Technical Attachment

Increased Risk of Freeze Events

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The following maps show the increased risk of having a freeze event with at least one night of minimum temperature at or below the following thresholds, when compared to a winter during an El Niño or La Niña.

Freezing events with minimum temperatures at or around 32 degrees F are relatively common and occur nearly every year, with El Niño or La Niña having little impact on the frequency of occurence. Effects of these mild freezes are easily mitigated with the application of water or other cold protection measures. However, as we look at lower and lower minimum temperatures, the increased risk rises substantially. We have chosen to highlight events with low temperatures of 28, 20, and 14 degrees F. The 28 degree threshold is often associated with a hard freeze warning. The 20 degree mark is important for many crops, as temperatures at or below 20 degrees can cause extreme damage to crops, in spite of cold protection measures. The 14 degree threshold is also highlighted, as temperatures in this range can be damaging to the Vidalia Onion
crop in Georgia.

An examination of minimum temperatures from weather stations all over the Southeast from the past 50 years shows that freezing events are up to three times more likely to occur in Neutral years than during El Niño or La Niña. The analysis is presented in map form in terms of ODDS, another way of looking at probability. In the areas shaded blue, the odds of a freeze event with minimum temperatures at that threshold or below this year are 3:1 when compared to La Niña or El Niño (above) winters. Likewise, the odds are 2:1 in the green areas and only 3:2 where shaded orange. In the white areas of Northern Florida, freezes of different thresholds are relatively common in all years. In the hatched areas of South Florida, freeze events are rare in all years.